# TEXTILE READER'S GUIDE

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# Abstracts

[ 572 ]

## FIBERS A

### Natural fibers A 1

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Dr. John W. Wright. *AATT Magazine 6,* 122-24 (June 1951.


See front section.


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R. Meredith. *J. Tex. Inst. 7/8,* T291-T299 (July/Aug. 1951).

Correlates the tensile strength of single fibers and of flat bundles for 14 samples of cotton, with the orientation of the crystallites as measured by x-rays. The coefficient of correlation although ranging from 0.77-0.84 is not considered high enough to allow accurate prediction of strength from x-ray orientation. Variation in convolution angle within a variety affects the orientation as measured by x-rays, but has little influence on the strength. Data are also presented to show that increasing maturity produces an increase in measured x-ray orientation without a corresponding increase in strength.

**Fiber properties related to fabric resilience and hand**

L. G. Ray. *ASTM Bull. 176,* 46-48 (Sept. 1951).

The hand and resilience of fabrics can be related to five fundamental fiber properties:

1. Elastic modulus in tension.
2. Shape of the stress-strain curve.
3. Ability to recover the work of elongation.
4. Shear modulus.

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4. Shear modulus.

5. Degree of anistropy.

The influence of these fundamental properties can be modified by geometrical factors such as fiber cross-sectional shape and area, yarn construction, and fabric construction. Interfiber friction may also have important effects. It is suggested that interfiber friction should be measured perpendicular to the fiber axes as well as parallel to them.

**Liquid treatment of textile fibers**

Ralph S. Hood (to Monsanto Chemical Co.) USP 2,568,499, Sept. 18, 1951.

A method and apparatus for applying a conditioning material to fibers which involves opening the fibers and blowing them through a duct into which the liquid is sprayed.

**Production of chemically colored fibers**

Z. A. Rogovin, A. G. Yashunskaya & B. M. Bogoslovsky. *J. of Applied Chem. USSR 23*, 665-73 (1951); *in English.*

To obtain chemically colored fibers, the cellulose in viscose fiber and fabric and cotton fabric was oxidized with periodic acid. The dialdehydecelluloses were condensed with amines and their derivatives and the resultant products were then coupled with diazo constituents. The chemically colored fiber is fast to wet processing and rubbing. Its light fastness is not noticeably higher than that of cellulose dyed with the usual substantive dyes. The loss of strength does not occur in aldehyde groups in the colored fiber should eliminate possible further loss of strength upon laundering.

**Quality control of cotton fibers**

R. M. Ashner. *Textile Industries 115*, 143, 145, 147, 149, 151 (Aug. 1951).

By testing raw cotton at the time of purchase and before it is processed, valuable information can be obtained on the expected running condition of the cotton; the grade of the end product; and the yarn, cloth, and finished fabric a particular quality of raw cotton will produce. A properly operated fiber testing program by the mills is recommended as one way to narrow the price gap between natural and man-made fibers.

A typical fiber testing program and the internal organization of a cotton testing laboratory are diagrammatically illustrated together with layouts of proposed fiber testing laboratories for large mills and for small mills. Proper integration of the control laboratory into the mill organization is most important with close cooperation





between the laboratory and the cotton classer essential. Not only must the laboratory check its results against the running conditions of the mill and the quality of the end product, but it must also correlate its results with cotton purchasing activities. The steps usually proposed when establishing a fiber control program are discussed, and the benefits from cotton controls are described. Also a summary of recent studies on fiber testing and nep counts conducted by the U. S. Department of Agriculture is given.

**Separation of wool and acetate fibers**

Alan Crummett & Albert Mellor (to Celanese Corp. of America) USP 2,566,403, Aug. 21, 1951.

Wool fibers are isolated from a mixture thereof with cellulose acetate fibers by carbonization of the acetate fibers in a vapor mixture containing hydrochloric acid and glacial acetic acid to render the acetate fibers friable.

**Technique of measuring orientation in cotton by x-rays**

R. Meredith. *J. Tex. Inst. 7/8*, T275-T290 (July/Aug. 1951).

Measures the degree of crystallite orientation for 14 cottons by x-rays and expresses the results in three ways. First, by the angular displacement of maximum blackening on the (002) diffraction arc to the point where absorption is 40 per cent of the maximum. Second, employs a calibration strip on each film, which allows transmitted intensity readings to be converted directly to the corresponding x-ray intensities. Third, uses a method which gives the average angle of inclination to the fiber axis of the chain molecules in the crystalline region.

## Artificial fibers A 2

**Animal-protein synthetic fiber**

Anon. *Textile World 101*, 170 (Sept. 1951).

A new synthetic fiber, Merinova, is being produced from an animal-protein base by Snia Viscosa of Italy. The chemical composition is said to be almost identical with that of wool. Some properties given by the manufacturers are dry 1.1 gpd and wet 0.6 gpd with 50% dry elongation and 60% wet.

**Dacron comes of age**

Anon. *Am. Wool Cotton Reptr. 65*, 71, 73, 75, 77, 79 (July 12, 1951).

In this analysis of the new Dacron fiber, a

comparison between the various characteristics of Dacron and wool fibers is made; properties of Dacron are described; and the future of Dacron is discussed.

**Present situation on Vicara**

Anon. *Am. Wool Cotton Reptr. 65*, 19, 21, 23 (July 12, 1951).

Vicara, the protein fiber derived from corn, is soft; adds a luxurious hand and feel to many fabrics to which it has been added; has a high moisture absorbency; has warmth, strength, and resilient properties similar to wool; and is moth and mildew resistant. In addition, it is said to have some crease-resistance, rapid wrinkle recovery, and shrink resistance. Vicara has been blended with wool, nylon, rayon, cotton, and other fibers without difficulty in the spinning, weaving or dyeing. Experimental and development work is being done on the blending of Vicara with the newer synthetic fibers, such as Orlon, Chemstrand, Dacron, etc.

**Dacron polyester fiber**

Anon. *Rayon & Synthetic Textiles 32*, 39, 40, 52 (July 1951).

Acrylic fiber and polyester fiber are different with respect to flexibility, resiliency, and stiffness. Dacron is described structurally, and this is offered as an explanation of its greater heaviness, and stiffness than that of Orlon. Natural uses for Dacron appear to be in suitings, and all types of outerwear. Characteristics for these uses are given.

**High polymer rayon staple**

Shozo Tachikawa. *Rayon & Synthetic Textiles 32*, 32, 33, 42 (July 1951).

Four key points in the production of Toramomen, a highly polymerized rayon staple, are said to be:

1) Aging of natron cellulose must be eliminated; 2) cellulose xanthate must be dissolved in pure water; 3) ripening of viscose must be eliminated; 4) spinning bath must consist of low concentration sulfuric acid without salt.

**Method and apparatus for forming fibers**

F. V. Tooley (to Owens-Corning Fiberglas Corp.) USP 2,566,643, Sept. 21, 1945.

Apparatus for producing glass fibers comprising means for advancing a heat resisting linear member along a predetermined path of travel, means for initially coating the member with molten glass as it is advanced along said path, and a burner positioned adjacent the path of travel of





the linear member having a chamber in which a combustible gaseous mixture is ignited and having a restricted discharge passage directed toward said member for discharging a blast against said member having a temperature sufficient to heat the glass on the member to attenuating temperature and having a velocity sufficient to blow the glass off the member in the form of fine fibers.

**Production of dyed crimped acetate staple**

Brit. Patent 653,575. *Brit. Rayon & Silk J. 28*, 74 (Aug. 1951).

A continuous process is described in which the tow is dried by passing through a tube in which air at 80-90° C. is flowing. A stream of cool air reduces the temperature of the tow which is then passed through the dyebath. After dyeing, the tow is sent through squeeze rollers, passed through washing baths, and lubricating liquors and finally dried to about 25% moisture. Then follows a continuous crimping by feeding into a box so that a pressure is developed, the tow being continuously removed from the outlet port.

**Synthetic fiber chart**

Wm. A. Newell. *Textile World 101*, 105 (Sept. 1951).

Textile World's 1951 Revision Synthetic-Fiber table giving the comparative properties of natural and synthetic fibers is now available.

**8-denier rayon staple**

Anon. *Textile Industries 115*, 171-2 (Aug. 1951).

An 8-denier crimped rayon staple is now being produced by American Viscose Corp. on a pilot scale. Fabrics made with this staple are said to have a springy hand approximating 58-60's wool and to have more resiliency and spring than fabrics made with 3- or 5½-denier rayon staple. Stiff, bristly effects similar to mohair and coarse apparel wools are said to be possible. The staple can be spun on the cotton as well as the worsted and woolen systems. It is being used on a very limited commercial scale in men's and boys' sweaters, bath mats, and upholstery and drapery fabrics.

## YARN PRODUCTION B

### Fiber preparation B 1

**Blending machine**

Grover C. Truslow & William M. Truslow. USP 2,565,637, Aug. 28, 1951.

In an apparatus for blending and fluid treat-

ing fibrous material the combination with a rectangular gauze room having a ceiling and floor, of a blending machine comprising a conduit for the circulation therethrough under air pressure of material to be blended, the conduit having an arm portion rotating about a vertical axis disposed centrally of the room, a framework carried by the arm, a blending head journaled on the arm and extending upwardly therefrom and having a discharge end near the ceiling, means for rotating both arm and head in timed relation to swing the discharge end successively outwardly toward and into the corners of the room, fluid pressure discharge nozzles carried by the framework and located intermediate the plane of discharge of the blended material and the room floor to act upon the material as it gravitates.

**Synthetics need even blending**

John H. Senior. *Am. Wool Cotton Reptr. 65,* 24-5, 27 29, 91 (July 12, 1951).

Proper blending of fibers is important to insure not only thorough mixing but also accurate proportioning from a weight standpoint. In the blending of synthetic fibers, thorough opening, stable moisture content of all the stocks to be blended, and accurate weighing are necessary in obtaining a uniform blend. Properly proportioned layers to make a sandwich type blend is also considered necessary to good blending. Modern blending equipment, developed by Proctor & Schwartz, Inc., which is discussed, includes a new type bale breaker with an opening or picking section built into its delivery end; weighing feeds, a development of the most accurate type of card feeding machine; the Proctor super picker; the Proctor ceiling condenser; and a roller distributor. The various units may be combined in any way to meet individual mill requirements.

**Spiked apron magnetic separator**

Staff. *Textile Industries 115,* 83 (Aug. 1951).

See front section.

**Tow-to-top system**

Walter H. Schneider. USP 2,569,957, Oct. 2, 1951.

A tow-to-top system comprising pairs of front and back drawing rollers, cutting means between the rollers and a deflecting roller between the back rollers and the cutter, which roller has a thin plastic periphery and is filled with fluid.

**Uneven picker laps**

Staff. *Textile Industries 115,* 157, 161 (Aug. 1951).



In answer to an inquiry on uneven picker laps, a contributor writes that uneven distribution in the lap is due to unstable cotton weight and volume conditions. Successful operation may be obtained by providing adjustable air inlets on the delivery side of each cage or screen with the openings approximately the same sectional area as the opening in the machine at the stripping rail following each breaker. Less air and less horsepower per pound of fiber are recommended. The method of executing this suggestion is described.

## Carding and combing B 2

**Function of card doffer cylinder**

Staff. *Textile Industries 115,* 152, 155, 157 (Aug. 1951).

Tentative conclusions on the card doffer cylinder stated that the function of the doffer is to carry away from the cylinder the fibers which are deposited on its surface by the cylinder with the doffer being a passive agent in the transfer. All parts of the cylinder are enclosed except the zone where the doffer operates, and thus the cylinder doffs itself in the only place possible.

Mechanical elements in the function of the doffer include that at the transfer point both cylinder and doffer move in the same downward direction with the ratio of circumferential speed about 30 to 1. The angles of the teeth on the doffer and cylinder are opposite at the point of transfer. The teeth of the doffer are sharper than those of the cylinder, there are more of them, and they are relatively free of fibers at the transfer point. An explanation of doffing is given.

**Profits from effective textile machinery lubrication. II — Carding**

F. S. Jones. *Textile Industries 115,* 129, 131, 133 (Aug. 1951).

Since the card is a precision machine, its mechanical condition predetermines the character and production of finished yarn. Maintenance of accurate adjustments and cleanliness by reducing wear and leakage with good lubrication has an important influence on production, costs, and ultimate profits. In discussing the lubrication of carding machinery, the following subjects are dealt with: the importance of card assembly settings; comb box lubrication; lubrication of cylinder bearings; and power saved by proper lubrication.

## Drafting and roving B 3

**Card and drawing frame coiler conversion for use of 14-inch cans**

Staff. *Textile Industries 115*, 107 (Oct. 1951).

A complete line of coiler conversion units is being manufactured for adapting any coiler for cards and drawing frames to use 14-inch cans.

The throw of the tube gear is sufficient so that when the larger can is installed and proper speed ratio established, the sliver passes around the center of the can in perfectly uniform layers and maximum can capacity is utilized.

While this line of coiler conversion units was being developed, the manufacturer found that certain coilers presented special problems due primarily to the coil pattern resulting when the tube gear was of limited throw. For conversions where this is the case a new coil pattern is available by using a smaller tube gear and higher ratio between cantable and tube gear speeds. Note that in this instance also maximum can capacity is utilized.

Mfr.: Southern States Equipment Co., Hampton, Ga.

**Comments on drawing rolls**

Staff. *Textile Industries 115*, 161, 163 (Aug. 1951).

Results of tests for linear regularity of sliver produced on six Saco-Lowell, four-delivery, drawing frames, three of which are equipped with metallic rolls and three with synthetic rolls, are given. The variation for the frames equipped with the synthetic rolls is less than that for the frames equipped with metallic rolls. The tests were made on the Saco-Lowell graphic sliver tester.

**Control rolls**

Anon. *Saco-Lowell Bull. 23*, 32-3 (June 1951).

A description of control rolls such as self-weighted rolls on drafting equipment, with details on function, size, and weight of Saco-Lowell control rolls for the Roth, the Z-2, and the SS-4 systems.

The actual weight of control rolls becomes more complex in view of the fact that the length of the roll will vary in accordance with the gauge of the frame. The outside diameter of control rolls must be kept at a standard dimension. It is our practice to maintain the weight of the regular leather-covered slip rolls from 1150 grains to 1300 grains for all gauges. The weight is held within this range by using larger-diameter arbors covered with leather only on the shorter rolls for the medium length rolls on the medium gauges, and by using tubing covered with leather for the extremely wide gauges.





**Drafting apparatus**

Robert F. Jessen (to Saco-Lowell Shops) USP 2,568,502, Sept. 18, 1951.

A drawing mechanism for use in textile frames having retaining rolls tightly gripping the strand to undergo draft and drawing rolls tightly gripping the strand and rotating at a surface speed substantially higher than that of the retaining rolls, the combination of an apron having a stretch lying beneath and parallel to the strand as it passes from the retaining rolls to the drawing rolls, the stretch of the apron supporting the strand in the drafting zone and being spaced from the nips of the retaining and drawing rolls, means for advancing the apron at a surface speed between those of the retaining and drawing rolls, the means including a driven roll within the apron and a roll having end portions pressing the edges of the apron tightly against the driven roll and a relatively light cylindrical central portion floating relatively to the end portions and adapted to rest upon and press the strand against the apron, a bar, within the apron supporting it with the forward end of the stretch close to the nips of the drawing rolls, and a light roll adapted to press the strand against the apron above the bar, the light roll and the light central portion being operable to restrain fibers not gripped by the drawing rolls, while permitting free passage of fibers, which are gripped by the drawing rolls.

**Drafting in worsted drawing and spinning**

P. P. Townsend. *Wool Review 363*, 24 (July 1951).

See front section.

**Relation of neps in card web, six elements of raw cotton quality, and yarn size to appearance of long-draft carded yarn**

Robert W. Webb & Howard B. Richardson. U. S. Dept. of Agriculture Report No. 12, 58 pages (October 1951).

See front section.

**Tape condensers. II**

W. J. Crofts. *Textile Industries 115*, 95-7 (Aug. 1951).

Even condensing will result in more uniform tensile strength in each strand of yarn with less

breakage in spinning and weaving and is particularly important for yarns with soft twist for knitting and the harder twisted weaving yarns. In this second article on the operation and maintenance of tape condensers, the following subjects are discussed: adjusting rub aprons, rubbing rayon-wool blends, preventing tapes and aprons drying out, the broken end problem, static electricity, wrinkled aprons, and avoiding tape slippage.

**The mill of today. Part 26. Production limitations of roving frames**

Robert Z. Walker. *Textile Bull. 77*, 51-2, 54 (Aug. 1951).

A discussion of roving-frame gauges and the type of rovings made from them, together with the influence of spinning-frame gauge on the overall production picture. Maximum size roving bobbins are tabulated for a standard spinning frame creel. The roving frame is analyzed for efficiency of operation, condition of flyers, and front roll speeds.

**15-inch coiler head for card and comber**

Staff. *Textile Industries 115*, 188 (Oct. 1951).

See front section.

## Spinning B 4

**Automatic doffing motion for spinning doubling and winding frames**

Eric J. V. Rigg. USP 2,564,280, Aug. 14, 1951.

Mechanism for doffing full bobbins of the type having annular grooves near their tops from the spindles of spinning and doubling frames and replacing them by empty bobbins consisting of two plates for each side of the frame, arranged above the spindles and extending from end to end of the frame, each plate being formed with a series of circular apertures one for each spindle and concentric therewith so that when a plate is lowered the apertures pass over the ends of the bobbins on the spindles leaving the running threads from the lappets to the travellers free, a number of pairs of flat springs carried on the upper surface of each plate, corresponding to the number of apertures in the plate, the springs of each pair being arranged one above the other and each spring having a hole of the same or substantially the same size as the aperture in the plate, the front of the hole in one spring and the rear of the hole in the other spring being extended in the form of a slot corresponding to the diameter of





the groove near the top of each of the bobbins to be doffed and replaced on the spindles, and means for moving the springs of each pair relatively to one another so that when the plate and springs have been lowered so that the ends of the bobbins project through the holes therein the ends can be gripped by moving the springs to cause the slots at the front and rear ends thereof to engage in the grooves in the bobbins whereby on lifting the plate all the bobbins will be removed from the spindles.

**Drawing mechanism for spinning and roving frames**

Eugene C. Gwaltney & Gordon C. Anderson (to Saco-Lowell Shops), USP 2,565,228, Aug. 21, 1951.

In a drawing mechanism for spinning and roving frames, the combination with a plurality of pairs of top and bottom drawing rolls positioned to act successively on a sliver, a weighting arm mounted for swinging movements in a vertical plane toward and from a position overlying the bottom rolls, a bar supported in a generally parallel relationship to the arm, a member loosely connecting together the forward end of the bar with the arm, a plurality of holders mounted on the bar and supporting the respective top rolls, means operable on the arm to apply roll weighting pressure to it, and a fulcrum member interposed between the arm and the bar for transmitting the pressure of the arm through the bar to the top rolls.

**Expansible tool for repairing spindles**

Clifford De Lancey. USP 2,563,993, Aug. 14, 1951.

An expansible tool for removing a tubular bolster from a bolster case.

**Handbook for spinners**

W. S. Ferguson. *Textile Industries 115*, 111-14 (Aug. 1951).

This manual is presented to aid in training spinners. It was designed to help a spinner master all of the operations and essential information before the trainee is placed entirely on her own. In practice, it is felt that individual spinning room supervisors will wish to make some changes to meet the needs of their particular mill.

**Improved operating methods**

Anon. *Am. Wool Cotton Reptr. 64*, 11-12, 16 (July 26, 1951).

In this third article on the discussions held at a meeting of the Textile Operating Executives of

Georgia, spinning methods as covered by the forum are discussed. Included are such subjects as: pneumatic roll pickers; use of rubber mounted spindles; ways to prevent wild yarn; controlling sliver, roving, and yarn weights; etc.

**Means for cleaning the rollers of spinning frames**

Florimond Delepierre & Jules C. Ghesquiers (to Societe en Nom Collectif des Brevets Florimond Delepierre) USP 2,562,451, July 31, 1951.

See front section.

**Method and apparatus for removing yarn from yarn packages**

Melvin B. Coleman, Sr. (to American Viscose Corp.) USP 2,567,990, Sept. 18, 1951.

An apparatus for stripping yarn packages comprising yarn package conveying means, yarn stripping means, yarn cutting means positioned after the stripping means in the direction of travel of the conveying means, the stripping and cutting means being disposed on both sides of and adjacent the path of the conveying means.

A method of stripping yarn from yarn packages comprising passing the yarn packages through a path while the yarn end hangs loosely from a support positioned away from the yarn package, sucking the yarn away from the yarn package at a point along the path thereby unwinding the yarn from the yarn package, and then cutting the unwinding yarn adjacent the yarn package at another point along the path.

**Rubber coated spinning tapes reduce slippage**

Staff. *Textile Industries 115*, 161 (Aug. 1951).

Spinning and twisting frame tapes dipped in rubber are reported by a contributor to last longer and to practically eliminate slippage. Because of the heavy spindles and spools used on twister frame, these rubber coated tapes are said to be of great benefit.

**Spinning ring assembly**

Elmer R. Stahl (to Celanese Corp. of America) USP 2,565,578, Aug. 28, 1951.

In a traveller ring assembly wherein a traveller ring carrying a traveller for rotation relative thereto is supported, a holder for the traveller ring, the holder having an annular groove, means for supplying lubricant to the annular groove, means for conducting the lubricant from the annular groove to the bearing surface of the traveller ring, an annular shelf integral with the holder disposed below the traveller ring for catching





lubricant dropped from the traveller ring, and means comprising a slot connecting the shelf and the annular groove for conducting to the annular groove the lubricant caught on the shelf.

**Signaling device for spinning frames**

Joseph F. Hunt. USP 2,568,337, Sept. 18, 1951.

A signal device to be applied to the creel of a spinning frame, the device comprising a sleeve arranged beneath and secured to the creel, the sleeve having a longitudinal slot extending throughout its entire length, the sleeve being provided at one end and at its bottom with a notch and provided at its opposite end and at its side with a notch disposed at substantially 90° from the bottom notch, a rod mounted within the sleeve to move longitudinally and turn therein and being substantially longer than the sleeve, a flag secured to one end of the rod and extending radially thereof, the flag being provided upon each of its opposite faces with indicia indicating the condition of the spinning frame, one indicium being inverted with respect to the other indicium, a first pin secured to the rod near the flag and extending radially in the direction of the flag, and a second pin secured to the rod near the free end of the rod and extending radially in an opposite direction to the first pin, the second pin being adapted to enter the bottom notch when the rod is turned to bring the flag to the raised vertical position, the flag being turned to the lowered vertical position when the second pin is moved out of the bottom notch, the first pin being adapted to be moved into the side notch when the rod is shifted longitudinally inwardly and turned so that the flag is substantially horizontal, the pins being passed through the longitudinal slot to permit complete separation of the rod and flag from the sleeve.

**Textile spindle**

Ernest D. Meadows (to Meadows Mfg. Co.) USP 2,565,389, Aug. 21, 1951.

In a device of the character indicated, a relatively fixed, upright stud for rotatably supporting a rotatable whorl or like member, the member having a bearing recess for receiving the upper end of the stud, antifriction bearing means interposed between the upper end of the stud and the bearing recess, an annular lubricant retaining cup carried by the rotatable member and closing the lower end of the recess, the cup having an upstanding inner wall defining central passage through which the stud projects, the rotatable member having a lubricant passage therein opening through the top

thereof and communicating with the bearing recess, whereby lubricant may be introduced through the top of the rotatable member and will be retained in the annular lubricant retaining cup.

**Yarn lubricant**

George W. Seymour, Fred Fortess & Marshall Duke (to Celanese Corp. of America) USP 2,564,768, Aug. 21, 1951.

A lubricating and conditioning composition for the treatment of textile materials to render the same more amenable to textile operations, comprising a mixture of about 55 parts by weight of a mineral oil, about 5 to about 12.5 parts by weight of castor oil, 1.5 to about 5 parts by weight of an alkylolamine, about 5 to about 10 parts by weight of a long chain aliphatic acid, about 5 parts by weight of an alkyl phenol and a blending agent selected from the group consisting of oleyl alcohol and diglycol laurate, the mixture of the desalted and dehydrated reaction product of oleum with a mixture of a long chain aliphatic acid, a vegetable oil and mineral oil neutralized with an alkali and an alkylolamine.

## Winding and spooling B 5

**Control of filamentary material**

Robert M. Ingham, Jr. (to Deering Milliken Research Trust) USP 2,565,500, Aug. 28, 1951.

The method of locating slubs and heavy sections of filamentary material which comprises continuously measuring the diameter of the material to create a control signal varying therewith and signifying by the material the location where the departure of the created signal from normal exceeds a predetermined value for a short period of time and exceeds a normal value but is less than the first named departure from the normal value for a longer period of time.

The signaling device is used to detect slubs and heavy sections of yarn by means of a photocell or a capacitative type of detector, and the variation in diameter is recorded, or, if desired, the material is severed to get rid of the abnormal diameter section.

**Winder**

John G. Kenshaw (to Drummondville Cotton Co., Ltd.) USP 2,568,960, Sept. 25, 1951.

A winding machine for laying at least three ends of yarn side by side on a core to provide a package of yarn which may be directly twisted to form a tire cord.





**Textile cone**

Chas. K. Dunlap (to Sonoco Products Co.) USP 2,569,094, Sept. 25, 1951.

A textile cone having small knobs projecting outwardly from the surface of the cone adjacent each end of the winding surface thereof so as to engage the windings and to prevent slippage thereof.

**Winding machine**

E. J. Abbott, dec'd, by W. L. Abbott, Exec. (to Abbott Worsted Mills, Inc.) USP 2,566,-299, May 3, 1950.

A filling winding machine thread guide mechanism including a thread guide having a short quick stroke of traverse and a progressive advance along a rotating winding bobbin, a feeler mounted to travel with the thread guide in its short quick stroke and progressive advance and mounted for movement away from the axis of the bobbin by contact with the wound thread on the bobbin, a profile element cooperating with the feeler to control the progressive advance of the thread guide, a feeler-restoring member for restoring the feeler toward the axis of the bobbin, and a displaceable connection between the feeler and feeler-restoring member permitting withdrawal, away from the axis of the bobbin, of the point of nearest approach of the feeler, as the feeler is moved to greater distances from the axis of the bobbin by contact with the wound thread.

**Yarn support**

Albert W. Keight (to Celanese Corp. of America) USP 2,565,562, Aug. 28, 1951.

In a yarn twisting and winding device, the combination with a thin-wall yarn package support comprising a tapered barrel of gradually increasing diameter from top to bottom and a generally cone-shaped skirt integral with the lower end of the barrel, the lowermost portion of the skirt having an internal wall of cylindrical form and an external peripheral groove for receiving a magazine wrap, of a spindle comprising a shaft having adjustably mounted thereon a mandrel having spaced tapered shoulders for engaging the barrel of the package support intermediate the ends thereof, and a supporting flange connected to the shaft for engaging and positioning the package support, the flange having a cylindrical member projecting from the upper surface thereof and fitting into the lowermost portion of the skirt of the yarn package support.

**Adhesion of tire cords to rubber stocks**

W. James Lyons. *Anal. Chem. 23,* 1255-59

(Sept. 1951).

A practical, reasonably quick method for evaluating the resistance of the adhesive bond between tire cord and rubber stock to flexural (dynamic) fatigue has been developed. The method employs the Roller-Flex machine, on which the test cords, cured in rubber and under tension, are subjected to rapid, cyclic flexure by being passed back and forth around small steel rollers. The resistance of the adhesive-bond to dynamic fatigue is evaluated by a measurement of the cord adhesion by the familiar H pull-out test, after the sample has been flexed on the machine for a 10-hr. period. There is a continual decline in cord adhesion as the flexing period is prolonged.

## Yarn applications B 9

**Adhesion of rayon cord in synthetic rubber**

Elmar Profft. *Chem. Ztg 75*, 223-7 (1951).

The technique used to measure the adhesion of viscose rayon tire cord imbedded and vulcanized in a Buna rubber is described in detail. The effect of pretreatments of the cord on the adhesion values was determined. M-phenylene-diamine-treated cord gave such good adhesion that the cord was partially frazzled in the separation tests instead of separating clean as after treatment with all other agents used.

**Alginate rayon in elastic yarns**

Brit. Patent 655,613, Lastex Yarn and Lactron Thread Ltd., July 25, 1951.

The object here is to produce a rubber-cored yarn that has a very high extensibility. First of all the rubber is stretched and wrapped with yarns so as to prevent it from contracting again. The yarn used in the wrapping is such that a part of it can be dissolved out after the elastic yarn has been woven. Removal of some of the restraining wrapping in this manner allows the rubber to contract once more and thereby become extensible under load. The yarn is dissolved and the remainder of the wrapping, cotton or regenerated cellulose rayons, is untouched and provides the final covering for the rubber core.

**Regenerated cellulose yarns with improved adhesion to rubber**

J. W. Illingworth, Brit. P. 653,019 (to Dunlop Rubber Co. Ltd.); *J. Soc. of Dyers & Col. 67*, 322 (Aug. 1951).

Regenerated cellulose yarns are produced by extruding a solution of an organic ester of cellulose containing a protein, e. g., casein, or a





thermosetting resinous condensation product, e. g. cellulose acetate and resorcinol-formaldehyde in acetone, into a setting of gaseous evaporative medium and then completely saponifying the ester in yarn form. Such yarn has a rough surface and improved bonding to rubber, and may be used, e. g. in tire cord.

**Rubber thread**

S. W. Alderfer & A. Bosshard (to Andrews-Alderfer Processing Co., Inc.) Brit. P. 653,-006.

A sheet of uncured rubber stock is cut into a large number of threads, which are stretched and made to adhere to a moving surface, e. g. the upper side of an endless belt, where they are permitted to relax to remove internal stress and are cured while on the surface.

## Yarn testing B 10

**Investigation on measuring the extensibilities of synthetic yarns**

Emmy Fritzsche. *Melliand Textilber. 32*, 611-14 (1951); *in German.*

This paper proves that not only the tensile strength, but also the extensibility depends upon the initial length. The graph of the elongation values takes a hyperbolic course with increasing initial length, so that it is possible to calculate the extension at breaking point for the initial length. Graphs of various synthetic yarns are included in the article.

**Standardization**

A. W. Bayes. *J. Tex. Inst. 7*, P273-P275 (July 1951).

Provides information as to techniques for obtaining a suitable range of sizes of some textile yarns.

# FABRIC PRODUCTION C

## Yarn preparation C 1

**Continuous record of viscosity readings. New Dutch apparatus**

Anon. *Tex. Ind. & Fibres*, 254-256 (Aug. 1951).

Describes an improved viscosimeter capable of continuously recording viscosity readings from the start of the gelatinization process.

**Device for selecting heddles for the application of threads**

Svend S. C. Fleischer. USP 2,564,330, Aug. 14, 1951.

In a device for selecting heddles in a sequence corresponding to a predetermined weaving diagram, the combination with a loom having a series of parallel harnesses carrying heddles to be threaded, of illuminating indicating members, each including an electric signal lamp, there being one member associated with each of the harnesses, means for holding the members in close relation to the harnesses to illuminate the heddles thereof, a rotary, electric circuit controller for illuminating the lamps in a predetermined sequence, an electric circuit including the controller and the signal lamps, electrically-operated means for giving the controller a step-by-step rotary movement, a manually-actuated switch, and a second electric circuit including the switch and the electrically-operated means.

**Method and apparatus for separating single threads from a thread layer**

Svend Sigurd C. Fleischer. USP 2,564,329, Aug. 14, 1951.

A method of consecutively separating single threads from a thread layer by the employment of selector members, in which the threads that are engaged by a selector member from the edge of the thread layer are moved out of the plane of the thread layer and transferred laterally to an intermediate position somewhat displaced from the edge of the thread layer, where they are held until in this position they are engaged singly by another selector member and moved on to other members for subsequent treatment, the threads in the intermediate position being subjected to a tension produced during separation, which tension prevents other separated threads from being moved to the intermediate position as long as any thread is in this intermediate position.

**Method and apparatus for applying liquids to textile fibers**

Ralph S. Hood (to Monsanto Chemical Co.) USP 2,568,499, Sept. 18, 1951.

A continuous method of applying liquids to textile fibers which comprises continuously bringing textile fibers prior to their formation into a lap into contact with an air stream which is moving at sufficient velocity to pick up the fibers and convey them in a suspended state, directing the air stream containing the suspended fibers through a passageway provided with at least one narrow portion which terminates in an opening of substantially smaller cross-sectional area than the cross-sectional area of the passageway, continuously discharging a jet of air into the moving





air stream in the same direction that the air stream is moving and at such a point in the line of travel of the air stream and at sufficient velocity to accelerate the fibers in their passage through the narrow portion of the passageway, and subjecting the fibers in the air stream to a spray consisting of fine droplets of liquid while the fibers are being accelerated by the jet of air and before they emerge from the narrow portion of the passageway.

**Method and means for intermittently treating sized yarn**

Ira L. Griffin. USP 2,568,446, Sept. 18, 1951.

That method of applying a controlled amount of a treating solution to a sheet of yarn which comprises passing the yarn through a sizing box to apply a coating thereto and then intermittently applying to spaced portions of the sheet of yarn a controlled amount of treating liquid before the yarn is dried and then drying the yarn.

**Rayon warp sizing**

J. H. MacGregor. *Textile Mfr. 77*, 371-2 (Aug. 1951).

The trend to cotton-system warp sizing is reviewed, and factors influencing satisfactory sizing and weavability are discussed. Stronger size solutions are said to be necessary for acetate yarns which contain a large amount of yarn lubricant.

Badly taped spun-rayon warps frequently lead to excessive shedding at the loom. A taped warp is also difficult to part at the lease rods.

Preferred temperature of size box is between 40 and 50 degrees C. Serious stretching of acetate rayon follows overheating and, in turn, causes poor weavability.

The principal differences between the sizing of spun and continuous-filament yarn are discussed, with one of the important considerations being tension. Spun yarns will stretch when wet, but continuous viscose yarns contract when wet. Differences in tension are required in the warp sizing operation.

**Slasher for sizing textile yarn**

Conway L. Still (to The Springs Cotton Mills, Inc.) USP 2,565,407, Aug. 21, 1951.

See front section.

**Stop motion**

Albert A. Astill & Georges Fama (to Celanese Corp. of America) USP 2,563,906, Aug. 14, 1951.

In a textile device for operating on a travelling

warp of yarns, means for guiding the warp in a given path and means for stopping the feed of the warp upon breakage of a yarn thereof, the latter means comprising an open vessel beneath and across the width of the warp, means for supplying to the open vessel electrolyte in such an amount as to maintain a constant overflow from the open vessel, electrically conducting means forming part of a normally open electrical circuit adjacent to the open vessel and extending along the length thereof, and pneumatic means comprising air under pressure directed on the warp for forcing a broken end of yarn out of the plane of the warp, the construction and arrangement being such that the broken yarn falling on the open vessel and the electrically conducting means adjacent thereto is wetted by the electrolyte and closes the normally open electrical circuit to stop the warp feed.

**Water-soluble textile size**

Daniel E. Strain (to E. I. duPont de Nemours & Co.) USP 2,566,149, Aug. 28, 1951.

A water-soluble textile size comprising a polymethacrylic acid and a sodium salt thereof combined with a wetting agent.

## Weaving C 2

**Automatic battery for looms**

A. J. Fiset, Carl D. Brown (to Draper Corp.) USP 2,566,880, July 20, 1948.

For an automatic battery for looms having in combination a support, containing and guiding means for a plurality of filling supplies each of which comprises a main thread package and a tip finding bunch, and a transferrer for expelling said filling supplies in succession from the battery and into a shuttle upon call for replenishment of the filling therein, improved means for finding the end of the main package automatically prior to transfer of the said supply to a shuttle which comprises a pivoted bunch remover movable to engage behind the bunch and means functioning in response to movements of the transferred for controlling said remover to strip the bunch from the supply, and other means functioning in timed relationship to said remover for taking said tip finding bunch from the remover and for extending it away from the supply and attaching it to a holder by which it is retained until transfer of the supply is completed and the shuttle has again resumed its picking movement.

**Automatic double shuttle loom**

Edward L. Roullard (to Goodall-Sanford, Inc.) USP 2,562,509, July 31, 1951.



In a loom having a pair of filling carriers simultaneously picked in superposed relation in the same direction across the loom and a lay moving between front and back centers, the combination of a single filling carrier box on one end of the lay, a support with a single filling carrier box thereon, and means for moving the support in synchronism with the lay and with the single boxes superposed during the period the filling carriers are picked out of and into the boxes and to bring the support at the end of each forward movement into a position rearward of front center with the single boxes out of vertical alignment thus to enable a filling carrier readily to be inserted from above into either single box without interference with the other.

**Butcher's rayon**

Anon. *Am. Wool Cotton Reptr. 65,* 11-12, 33 (Aug. 2, 1951).

Many interesting variations are possible with Butcher's rayon which are coarse in texture and are considered medium and relatively heavy weight rather than of light weight, although some light-weight fabrics can be made. Two-ply yarns in plain weave are used in a large number of cases, and a wide range of combinations is possible in percentages of regenerated and acetate fiber or of different denier fibers. At least one of the yarns in Butcher's rayons is of a slub, bunch or irregular character; and bright or dull fibers can be used alone or in combination. Construction details of eight types of Butcher's rayon are given, and a rayon-cotton Butcher's rayon fabric is analyzed.

**Cloth roll support device**

John Rinne, Everett H. Ashton, Robert G. Mallard and Francis G. Lake (to Steel & Alloy Tank Co.) USP 2,564,342, Aug. 14, 1951).

In a take-up mechanism for a loom, a cloth roll, means supporting the cloth roll for movement towards and away from driven position, spring means urging the cloth roll towards the driven position, a fixed brake frame plate extending substantially parallel to the movement, and having ratchet teeth, a pawl carried by the cloth roll and adapted to cooperate with the ratchet teeth to lock the cloth roll against movement towards the driven position in opposition to the action of the urging means, while permitting the cloth roll to move away from its original cloth roll driven position as the diameter of the cloth roll increases during cloth winding operations, a handle for moving the

pawl in and out of cooperative position with respect to the ratchet teeth, a brake shoe carried by the cloth roll and movable by the handle towards and away from the brake frame plate, to control the movement of the cloth roll towards driven position under the action of the urging means.

**Device for cutting off the ends of weft threads**

Hans Bosshard. USP 2,561,968, July 24, 1951.

In a device for cutting off the end of the weft thread left on changing the spool of an automatic weaving loom with which the device is associated, at least one stationary shearing blade and cooperating therewith a movable upper shearing blade, the upper shearing blade being controlled by a periodically oscillating member of the loom, a stretching roller cylinder provided with a series of tensioning wheels engaging the length of cloth from below and having an end piece arranged with its end face reaching to the cutting plane of the pair of shearing blades and the tensioning wheels being arranged to reach so near to the end face of the end piece that the edge of the cloth lies in the cutting plane of the pair of shearing blades.

**Gauges make the difference**

Staff. *Textile Industries 116,* 106-7 (Aug. 1951).

Proper tools and gauges are necessary for expert loom fixing and overhauling. Illustrations are given showing the gauging done at the Emil V. Wilson plant in assembling and adjusting the lay and then in assembling the loom as a whole.

**Grob harness frames have free riding slide hooks**

Anon. *Textile Industries 115,* 81 (Aug. 1951).

The "Lightmetal" harness frame, manufactured by the Grob Corp., has free riding slide hooks which will not allow heddles to bunch and thus avoids any gaps in the warp which often results in warp streaks. The hook part of the assembly, when in position, locks the entire hook to the frame, allowing hook adjustment and eliminating hook pull-outs. The side supports of the frame, made from "Lignostone," cannot warp and are moisture proof. They are formed so as to prevent metal-to-metal contact during operation. Wear on heddle and heddle bars is said to be reduced and unequal tension on the warp is said to be prevented by this frame.

**Harness return strap and anchor device**

Francis G. Lake (to Steel & Allow Tank Co.) USP 2,565,375, Aug. 21, 1951.





A one-piece anchor for attaching the end of a return harness strap to a peripheral hole in a harness return loom pulley, comprising a ferrule section adapted to be fastened over the end of the strap, and a spur-like catch extending from the ferrule section at an acute angle with respect to the inner portion of the ferrule section and adapted to extend into the pulley hole in anchoring position.

**Letoff motion**

Henry T. Marcy (to Steel & Alloy Tank Co.) USP 2,565,386, Aug. 21, 1951.

In a loom having a warp beam and operatable through recurrent weaving cycles, the combination comprising a conduit system, a pump in the system for circulating liquid therethrough, a hydraulic motor in the system in series with the pump, a drive connection between the motor and the warp beam, means for operating the pump continuously, a valve by-passing the motor, whereby the motor is operated at increased speed when the valve is closed, and means for closing the valve during a period of each cycle when the tension of the warp yarn exceeds a predetermined value and for opening the valve during the remaining period of each cycle when the tension of the warp yarn exceeds a predetermined value and for opening the valve during the remaining period of each cycle when the tension is restored to a lower value.

**Mechanism for maintaining cloth in contact with take-up roll**

John Rinne, Everett H. Ashton, Robert G. Mallard and Francis G. Lake (Steel & Alloy Tank Co.) USP 2,564,343, Aug. 14, 1951.

In a take-up mechanism for a loom, a take-up roll, a pressure member extending along the take-up roll, and cam means for forcing the pressure member towards the take-up roll in its passage from the take-up roll to a cloth roll, the cam means being adjustable to control selectively the pressure of the pressure member against the take-up roll.

**Method of reconditioning crankshafts and the like**

C. J. Allen, Jr. (to Amer. Crankshaft Co.) USP 2,567,685, June 13, 1951.

The process of reconditioning worn automotive crankshafts and the like which comprises fusing a surface coating of metal on the main journals and rod throws, and on the thrust bearing surfaces, of a worn crankshaft, wherein the heat

of fusion causes stresses that result in distortion of the crankshaft, rough grinding said rod throws oversize and in proper lineal relation, and thereby substantially relieving the stresses resulting from the application of said fused metal coating, then finish grinding one of said thrust bearing surfaces in relation to said rough ground rod throws to the required lengthwise dimension from the neck of said crankshaft, and then finishing the other thrust bearing surface and said main journals and rod throws in relation to said first finish ground thrust bearing surface.

**Negative let-off motions**

W. Middlebrook. *Textile Mfr. 77*, 380-83 (Aug. 1951).

The negative or frictional let-off motion does not attain the ideal of equal tension throughout the warp, but it does have the advantage of simplicity.

The various methods are discussed, from very simple systems to more elaborate mechanisms, including the slung weight and weight bar systems, double compound weight levers, and the "Easie" and "Adjustable" weighting motions.

**New selvage motion**

Anon. *Brit. Rayon & Silk J. 28*, 62 (Sept. 1951).

See front section.

**New fabric guider**

Anon. *Brit. Rayon & Silk J. 28*, 62 (Sept. 1951).

See front section.

**New type of shuttle guard**

Anon. *Textile Mfr. 77*, 378-90 (Aug. 1951).

Details of a very efficient guard which features spring and ball arrangements to apply pressure to hold it firmly in position when weaving, and similarly when it is pushed slantwise out of action by the weaver.

**Oscillating lease rod leveling mechanism**

Albert E. Winslow (to J. P. Stevens & Co., Inc.) USP 2,562,838, July 31, 1951.

In a loom the combination of a pair of lease rods mounted to oscillate on an axis intermediate thereof and parallel thereto, means for oscillating the lease rods an the axis during the operation of the loom, and an element moved when the loom stops at front center acting upon the means to position the lease rods in level position.





**Pneumatic thread collector system for weft replenishing looms**

Carl P. Bergstrom, Benjamine W. Brower (to Crompton & Knowles Loom Works) USP 2,567,540, April 15, 1950.

In a pneumatic thread control system for a weft replenishing loom having a source of subatmospheric pressures and a hollow collector for waste threads, a cover normally closing the collector, means mounting the cover for rotation thereon and about an axis around which the cover swings when moving away from the closed position thereof, and a resilient tubular member secured at one end thereof to said source and having the other end thereof fixed with respect to the cover, said cover when turning about said axis in a direction away from the closed position thereof tending to create torsional strains in said tubular member but turning relatively to said means in a direction to reduce said torsional strain.

**Pneumatic thread remover for looms**

A. C. Krukonis (to Crompton & Knowles Loom Wks.) USP 2,566,839, Mar. 25, 1950.

In pneumatic thread remover mechanism for a loom having a bobbin transferrer arm and a supporting stud therefor, a carrier mounted for angular movement on the stud and moved from normal position to pick-up position by the transferrer arm, a thread remover including an elongated member, means mounting the member for pivotal movement with respect to the carrier, a guide for the member on the carrier capable of guiding the member for movement relatively to the carrier in a direction opposite to that in which the carrier moves when moving toward pick-up position, and resilient means normally holding the member in normal position with respect to the carrier but yielding to permit movement of the member relatively to the carrier in said opposite direction when the remover engages a misplaced shuttle as the carrier moves toward a pick-up position.

**Picking mechanism for looms**

Wm. A. Blanchard (to Crompton & Knowles Loom Works USP 2,564,747, Aug. 21, 1951.

In a shuttle picking mechanism for a loom having a picking actuator, a picker stick for picking the shuttle, a picking shaft operatively connected to the picker stick, an energy storing means on the shaft including a picking shoe for engagement with the actuator, and compression springs, the energy storing means having energy stored therein by the actuator during the first

part of the picking operation and returning the energy for application to the picking stick during the latter part of the picking operation.

**Thread cutting and clamping mechanism**

John J. Stanley (to Steel & Alloy Tank Co.) USP 2,565,405, Aug. 21, 1951.

In a loom having a starting rod which is partially rotated when transfer is indicated, a bobbin transfer mechanism, a transmission between the starting rod and the transfer mechanism for initiating the operation of the transfer mechanism upon partial rotation of the starting rod resulting from a transfer indication, a thread cutter, and a cable connection between a movable part of the transmission and the thread cutter for operating the thread cutter upon operation of the transfer mechanism.

**Thread remover for weft replenishing looms**

Benjamin W. Brouwer & John T. Kennedy (to Crompton & Knowles Loom Works) USP 2,564,149, Aug. 14, 1951.

In a weft replenishing loom having a thread to be removed extending from the cloth along a backwardly and forwardly reciprocating lay, a pneumatic thread remover having a thread intake mouth in front of the thread, and a shuttle position detector over the lay and thread extending forwardly toward the remover and having a downwardly and forwardly inclined surface effective during forward motion of the lay to direct the thread toward the intake mouth.

**Varied angle ring temple**

Staff. *Textile Industries 115*, 107, 185 (Oct. 1951).

See front section.

**Warp streaks**

S. W. Brainard. *Rayon & Synthetic Textiles 32*, 31, 34 (July 1951).

Dyed twill lining fabrics made with viscose rayon in both warp and filling show varied degrees of warp streaks, and it can safely be said that freedom from this defect is never entirely accomplished in commercial practice.

A study was made in the mill of a prominent manufacturer of lining fabrics of the improvements in warp streaks that could be obtained where virtually all of the dyeing variations in the yarn that could cause streaks were eliminated. Several warps were mounted in looms that had been operating on the same 112x66 twill lining for an extended length of time, and the fabrics





made from the test were dyed and compared with fabrics made from the same looms using commercial warps.

However, the results were disappointing, in that all fabrics showed numerous warp streaks to approximately the same degree. However, a close examination of the fabrics revealed a similarity of warp streak pattern when fabric cuts from different warps in the same loom were compared, indicating that the warp streaks were associated with the loom.

As a first step in the analysis of the loom variables, a new reed was placed on the loom and dyed cuts of fabrics taken from one of the test warps before and after the reed change. Changing the reed was seen to mean the difference betwen an average warp streak intensity and fabric with the best uniformity that we had had to date. Warp streaks were almost entirely eliminated on fabric woven on looms with the new reeds.

**Weave design variations**

Max Steiner. *Textile Industries 115*, 101 (Aug. 1951).

Some interesting design variations of the six-shaft sandcrepe or pebble weave, one of the basic weave patterns, are given. Selection of fabric and yarn counts will have a bearing in the surface effects of these weaves.

**Wiring the loom**

Victor Sepavich. *Am. Wool Cotton Reptr. 65*, 9-10, 49-51 (July 19, 1951).

The electrical components of looms have greatly increased with the addition of automatic controls and increased loom speeds. The wiring system of a loom depends not only on the type of loom but also on the fabric to be woven and the degree of automatic operation. Information on loom wiring in today's modernized mills is discussed.

**Woven fabric**

N. M. Cohen, USP 2,566,482, April 14, 1948.

A textile fabric composed of lustrous yarn woven together to form blocks, a plurality of said blocks each provided with large passageways arranged in lines across the block to render the block highly porous, the portions of said fabric surrounding said passageways being comparatively tightly woven, a plurality of blocks each of which has a twill weave interconnected by fabric portions comparatively tightly woven in conventional square weave, and the porous blocks and the blocks embodying twill weave being alternate-

ly arranged in lines extending transverse and longitudinally of the fabric.

## Knitting C 3

**Circular knitting machine**

Philip A. Brooks. USP 2,561,491, July 24, 1951.

In a circular knitting machine having a product-receiving cylindrical container into which the knitted product is drawn mechanically, a cylindrical member disposed in the container, the member having an open upper end and a closed lower end, the length of the member being substantially equal to that of the container, means spacing the wall of the member away from that of the container, and means for spacing the closed lower end of the member away from the bottom of the container.

**Jacquard socks knit automatically**

Anon. *Textile Industries 115*, 175, 177 (Aug. 1951).

Hosiery of Jacquard fabric in leg and instep with plain foot bottom and 1/1 top can be produced automatically and in complete form on the Model JL Original Komet Double Cylinder Knitter. In addition, this model knits all types of hosiery that can be made on the Model BR Komet. The scope of patterning is practically unlimited with pattern selectors having 26 pattern selector butt positions and with 48 teeth in the pattern drum rack wheels. Alteration of pattern is quickly accomplished by changing the positions of pins in the pattern drums. Mfr.: The Bentley Knitting Machine Organization, Inc.

**Knitting machine**

Albert L. Oberholtzer (to Scott & Williams, Inc.) USP 2,565,877, Aug. 28, 1951.

A knitting machine comprising a cylinder, needles carried by the cylinder, a wrap yarn carrier, means for mounting for radial pivotal movement the end of the wrap yarn carrier remote from the needles, means for moving the wrap yarn carrier radially to present a wrap yarn to the needles, a rest having a laterally turned edge abutting the yarn carrying end of the wrap yarn carrier, the rest rotating with the needles, and an abutment engageable by the wrap yarn carrier to provide a relative circumferential movement between it and the needles away from the rest, the wrap yarn carrier being flexible so that the last mentioned movement occurs while the mounted end of the carrier moves circumferentially with the needles.





**Knitting machine needle motion**

Robert S. E. Hannay (to F. N. F. Ltd.) USP 2,562,034, July 24, 1951.

A warp knitting machine comprising a needle bar, a row of knitting needles on the bar, the needles being adapted to receive a line of loops on a fabric to be knitted by the machine, warp thread guides for leading warp threads engageable by the needles to the line of loops, a rotary shaft, connecting means between the shaft and bar for giving the needles an endwise movement to and from the guides, and link-and-lever mechanism connected with the bar to superpose on the movement a pivotal movement of the row of needles about the line, the link-and-lever mechanism comprising a pivotal control mounted to oscillate about an axis parallel to the line, a slider constrained by the control to endwise movement combined with pivotal movement about the axis, and a parallel linkage interconnecting the slider and the needle bar.

**Radiant heating system**

Staff. *Textile Industries 115*, 87-90 (Aug. 1951).

Full-fashioned hosiery knitters are very sensitive to temperature changes and must operate in a moderate, even temperature to prevent expansion of contraction of needles and related parts. Nylon, size, and lubricants which are used in producing hosiery are also affected by atmospheric temperature. To attain constant temperature interiors, Kulpsville Hosiery Mill, Inc. installed a radiant heating system, a description of which is given. In addition to constant temperature, radiant heating eliminates dust since air movement is not set up, and the relative humidity in the plant tends to remain stable since radiant heat does not affect the moisture. As a result of the installation of this system, a savings in fuel costs of 30% has been realized together with a better running plant.

**Stitch cam guage for Komet machines**

Ernest Bridges. *Textile Industries 115*, 105 (Aug. 1951).

Since Komet machines are equipped with stationary stitch cams, the lengths of respective stitch cams must be checked by measurements to control uneven knitting. A simple stitch cam gauge, designed to give a quick check of length, is illustrated with details of construction shown in a diagrammatic sketch. In checking stitch cam lengths, the stitch cam section and the guard cam immediately under the stitch cams are removed,

and the gauge is placed under each stitch cam in turn. Clearance between stitch cams and guard cam must be checked if both cams are the same length.

## STANDARD FINISHING D

**Guide rollers**

G. Keeble & J. Sharple. Brit. P. 652,644. *J. Soc. of Dyers & Cols. 67*, 315 (1951).

A guide roller around which the material being dried travels when passing from the upper to the lower chamber is mounted on supports which yield when the material shrinks, thus preventing undue stresses in, and consequent breakages of, the material.

**Finishing apparatus**

Alexander Melville (to Bleachers' Assoc. Ltd.) USP 2,569,897, Oct. 2, 1951.

In finishing woven fabrics, instead of the usual calendering rolls, the woven fabric is passed over a resilient comb-like formation which presses it against the hard surface of a roller, thereby producing a soft finish having a high degree of luster without glaze.

**High production infra-red dryer for knit goods**

Anon. *Textile Industries 115*, 81, 83 (Aug. 1951).

The "Geni" knit goods dryer, which measures 8′ 6″ from front to back and 9′ wide, has a capacity of 3,000 lb. in 8 hours and will dry any textile fiber. It also can be used for heat-setting thermoplastic fabrics or finishes.

Infra-red electric coils or infra-red gas burners, which occupy about 30% of the drying cabinet, raise the moisture in the fabric being processed to a temperature at which it vaporizes before any attempt is made to remove it. This stage does more than 75% of the drying job. After leaving the infra-red section, the fabric passes over two sets of 8 rolls each where both faces of the cloth are subjected to the blowing and suction of hot air while in a relaxed state. The fabric then passes over a perforated steam cylinder where it is saturated with live steam and dropped in loops onto a slatted conveyor which carries it the full length of the dryer and out to the finishing unit. Mfr.: Grand Rapids Textile Machinery Company.

**Hydraulic pressure in scouring and milling machines**

Sellers & Co. Ltd. & E. R. Sellers. Brit. P. 646,616. *Dyer 105*, 298 (Mar. 9, 1951).

An extension of a hydraulic pressure system (see Brit. P. 629,310) to additional features of scouring and milling machines includes: hydraulic control of the vertical rollers which are frequently placed in front of the nip rollers to guide the rope of fabric; of the loading of the trough lid behind the nip rollers; and of the draft board through which the fabric passes to the nip rollers.



**Infra-red drying oven**

Anon. *Textile Industries 115*, 165-6 (Aug. 1951).

An automatic drying oven for flash-drying on high-speed web presses delivers heat from reflector-type heating units whose surface temperatures are 1400° F. Oven heat is adjustable within a 350° differential, and thermostatic control automatically maintains desired temperature. When the press is stopped, the heating units are automatically moved away from the webs and the vent doors are opened. Thus scorching or weakening the web is said to be completely eliminated. Mfr.: Herbert Products Inc.

**Liquid control for textile washing machines**

Sterling O. Stageberg. USP 2,565,150, Aug. 21, 1951.

Apparatus for cleaning textiles comprising a tub adapted to contain detergent liquid, means to supply detergent liquid to the tub, means movably mounted in the tub to support the textiles to be cleaned therein, means controlled by the last named means to produce a force proportional to the weight of textile supported by the last named means, means responsive to the head of liquid in the tub to produce a force opposing the first named force, and means movable in response to the resultant of the forces to control the supply of liquid to the tub.

**Machine for reversely winding webs of fabrics**

F. Leach, I. W. Sutcliffe (to F. Smith & Co., Ltd.) USP 2,567,644, July 30, 1947.

An automatic reversing device of the character described for a machine for treating long webs of fabric and having two rollers onto and from which the web is successively wound and unwound, said reversing device including two drive mechanisms, each drive mechanism driving one of the two rollers and comprising two rotatable discs arranged side by side; two trains of gearing driving the said discs from the roller operated by the other drive mechanism, the ratios of the said

trains of gearing being such that one disc is rotated at a considerably greater speed than the other disc and each disc having a recess on its periphery, the discs being capable of being rotated to bring the recesses into alignment; a stud adapted to enter the two recesses when they are in alignment with each other and with the stud; an arm carrying the stud on the end thereof; a rotatably mounted member to which the arm is affixed; and a pair of switches, one of which is adopted to start the drive mechanism of one roller and the other to start the drive mechanism of the other roller, the switches being operated when the stud enters into the recesses in the discs through the consequent angular movement of the arm imparting a rotary movement to the rotatably mounted member.

**Metal sequestering agents in textile processing**

Anon. *Textile Ind. & Fibres* 264-266 Aug. 1951).

Discusses various sequestering agents (detergents, the complex phosphates) and the role they play in wet-finishing.

**Nylon setting machinery**

Paramount Textile Machinery Co. Brit. P. 646,826. *Dyer 105,* 300 (Mar. 9, 1951).

Improvements in apparatus for steam setting nylon stockings on forms (Brit. P. 602,262 and 615,123) include electrically actuating and controlling the opening of the door, admitting steam to the chamber of the retort, exhausting the steam, opening the door and causing the form carriage to be ejected from the chamber. Also provided are a power actuated door mechanism arranged to be automatically released in case of any unusual resistance encountered during its movement and improved means for locking the main carriage in position while the operator is working on the forms.

**Opening device for tenter feeding**

C. H. Turner. Brit. P. 644,987. *Dyer 105,* 299 (Mar. 9, 1951).

A feeding apparatus for removing creases or folds from the fabric selvedge so that it can be fed flat on to a tentering machine comprises a top plate hinged to a bottom plate which carries upper and lower blades arranged in staggered relationship, each with an arm pivoted in bosses and spring loaded. Tension of each spring is adjustable by means of the set screws, so that each blade can be set at a predetermined position relative to the bottom plate; and the blades are set at an





angle across the direction of feed of the cloth. The top plate is cut away so as to have its edge adjacent to the upper blade; and a slot in the bottom plate, through which the lower blade projects, permits full adjustment of the blades. The bottom plate also has an edge guide for the operator, and a pivotal bridge piece, beneath which the cloth passes before reaching the blades. An electric contact mechanism which includes a feeler arm engaging the edge of the material controls the correct line for feeding the material.

**Sponge rubber combination material**

Elisha B. Lewis (to Commonwealth Engineering Co.) USP 2,567,951, Sept. 18, 1951.

A combination material consisting of a textile layer and a fire resistant layer of vulcanized sponge rubber which contains sodium silicate, the textile material having a napped surface and the sponge rubber penetrating the interstices of the textile layer and firmly anchoring the threads of the nap.

**Starch substitution for finish**

Carl M. Marberg & Marion E. Shields (to the Perfex Co.) USP 2,567,722.

A finish for fabrics intended to replace starch to facilitate ironing comprising an aqueous solution to a carboxyalkyl cellulose, and a small amount of wax dispersed in the solution.

**Synthetic detergents**

O. M. Morgan. *Am. Wool Cotton Reptr. 65,* 9-10, 43 (Aug. 2, 1951).

Synthetic detergents, a particular class of surface active agents, combine one or several of the properties of wetting, penetrating, emulsifying, foaming, dispersing and cleaning; while soap, the oldest and best known surface active agent, wets, emulsifies and cleans but only under ideal conditions. Soap breaks down in mild acid solutions, precipitates lime and magnesium salts in hard water, etc.

The search for a product that would retain all the good properties of soap and eliminate its deficiencies resulted in the production of Nacconal which was the first low-cost, mass-produced synthetic detergent with a balanced combination of properties. Today synthetic detergents include 3 major groups: anionic, nonionic, and cationic. The anionic detergents are the oldest type and include alkylated aromatic compounds, fatty alcohol sulfates, condensation products from fatty acids, esterification products from fatty acids, esters of sulfated polybasic acids, and sulfonated

ethers and thioethers. This group of detergents is the one most widely used.

Nonionic detergents are condensation products of ethylene oxide with either fatty alcohols or fatty acids to provide an acyclic type, or condensed with an alkyl aryl nucleus to form a cyclic type. These detergents exhibit a greater lack of chemical reactivity than either of the other groups.

Cationic detergents are principally quaternary ammonium salts with limited wetting and cleansing ability. They are very effective finishing agents and are finding increased use as cationic germicides.

Advantages of synthetic detergents include such things as: less costly than soap, elimination of hard water problems, simplified purchasing, etc.

**Thoughts on scouring**

R. L. Elliott and G. E. Styan. *Dyer 105*, 294 (Mar. 9, 1951).

The scouring of wool fibers, yarns, etc., is necessary to remove soluble salts, mineral particles and insoluble dirt, wool grease and fat, processing oils, and mineral dust; and it is important to consider the properties and behavior of the fiber, the dirt or oil, and the detergents used. The development of self-emulsifying and emulsion stabilized mineral oils for wool, nylon, and cotton processing has eliminated some of the problems in scouring since these oils can be readily removed by scouring. In wool scouring it is important to consider wool's susceptibility to moisture and pH since they cause changes in swelling and surface properties.

Anionic detergents which include many different types are the largest group used, but the nonionic compounds are increasing in popularity. Generally, the straight chain hydrocarbon groups in sulfate esters with C14-C16 chain give the best results in scouring with the methyl secondary hydrocarbons next. A polymerization of 4 for ethylene oxide condensates is reported to give best results. Complex factors are involved in explaining detergency, and surface or interfacial tension measurements can be used only as an indication of detergent power.

**The preparation and bleaching of cotton piece goods. II**

A Durfee Damon. *Textile Industries 115*, 102-4, 183-4 (Aug. 1951).

In this second of a series of articles on the preparation and bleaching of cotton piece goods, the bleaching methods in use today are discussed. The caustic kier boil, the chlorine bleach method, the peroxide kier bleach method, and the continuous peroxide-bleaching range method are covered together with general information on kiers.



**Waterproof adhesives for cellulose**

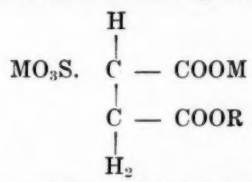
Robert B. Dean. *J. of Colloid Science 6*, 348-53 (Aug. 1951).

The adhesion of formaldehyde-linker resins to cellulose films (cellophane) is still strong after soaking in water or alkali. It may even be increased by boiling. The adhesion of these resins appears to be due to the formation of covalent bonds between the resin and the cellulose, possibly by aldehyde formation in the cellulose followed by condensation with reactive groups in the resin.

**Wetting and detergent composition**

Emil A. Vitalis (to American Cyanamid Co.) USP 2,562,154, July 24, 1951.

A wetting and detergent composition comprising essentially a surface active material which is a monoalkyl sulfosuccinate having the formula:



in which M is a member of the group consisting of alkali metal and ammonium radicals and both M's are the same, and R is an alkyl radical of from 12 to 18 carbon atoms, and a water-soluble lithium salt capable of increasing the water-solubility of the monalkyl sulfosuccinate, the water-soluble lithium salt being present in an amount within a minimum range of from 0.25 mol to 3.0 mols and a maximum amount of 10 mols for each mol of the sulfosuccinate.

## DYEING AND PRINTING E

**An important economy in machine printing**

Anon. *Brit. Rayon & Silk J. 28*, 63-4 (Aug. 1951).

In textile printing by engraved copper rollers the re-use of the rollers when a pattern has been discarded is a matter of considerable economic importance. The usual procedure is to "turn-off" the pattern to the depth of the engraving (five thousandths to fifteen thousandths of an inch) and re-engrave the fresh pattern on the new surface. This process may be repeated until the roller becomes too thin for use.

The article deals with some situations which are likely to arise in cases where this process of turning-off has gone on for too long and the copper shell has become too thin for safe use in the printing machines. The various matters discussed include: adaptation of design to smaller circumference of rollers; influence on printing blankets and back-greys; use of thin rollers on wide printing machines; "slack" rollers of "lobbing."

**Dyeing of Acrilan**

Anon. *DuPont Technical Bull. 7,* 121-40 (Sept. 1951).

A detailed report on the affinity of different classes of duPont dyes for Acrilan concludes that the most promising dye types thus far evaluated are the Pontachrome, chromacyl and selected capracyl dyes. Also included are some of the acetate, acid and direct colors. Tables give numerical ratings for these dyes on Acrilan after subjection to important fastness tests.

**Dyeing of fabrics made of synthetic fiber**

Arthur W. Eechells. *Am. Dyestuff Reptr. 40,* P598-601 (Sept. 17, 1951).

A discussion of the economic factors involved in the development of new fibers and the replacement of natural fibers by synthetics; a report of some of the advances in the dyeing of viscose, such as new continuous-dyeing equipment and the development of new dyes containing copper, which improve in fastness to light after resin treatment. New after-treatments for improving the fastness of direct colors on viscose are also mentioned.

**Dyeing acetate staple**

Brit. P. 645,987, Brit. Celanese Ltd. *Dyer 105,* 299-300 (Mar. 9, 1951).

Elimination of over-dyed fiber ends is claimed in the dyeing of acetate staple, dyed with a solution of a dye in a mixture of water and an aliphatic monohydric alcohol containing up to 5 carbon atoms, together with an inorganic thiocyanate (see Brit. P. 583,349). Improvement of this process includes scouring of the fabric after the mechanical impregnation with the dye solution. The scouring is responsible for eliminating the over-dyed fiber ends.

**Dyeing of new synthetic fibers**

C. G. Lyle, J. J. Lannorone and R. J. Thomas. *Am. Dyestuff Reptr. 40,* P585-96 (Sept. 17, 1951).

Better dyeing of the new synthetic fibers is





accomplished at high temperatures. Orlon acrylic fiber can be readily dyed with dispersed acetate colors, basic dyes, selected indigold and thioindigoid vat dyes at 250° F. without damage to the fiber. The cuprous ion method of applying acid dyes to fibers having nitrile groups in their molecular structure also appears adaptable at 250° F. High temperatures also permit the dyeing of Dacron with dispersed acetate colors in heavier shades and shorter periods of time without the aid of costly carriers. Tables, graphs, photographs and cross sections supplement the paper.

**Logwood and its application. V**

Anon. *Dyer 105,* 285-7 (Mar. 9, 1951).

Continuing the discussion of logwood and its uses, the processes employed in applying logwood to cotton, linen, jute, coir and horsehair fibers are described. Experimental work on the dyeing of wool-ardil blends with logwood is discussed, and uses of logwood in textile printing are also described.

**New ideas in wool dyeing tested**

D. Carter. *Dyer 105,* 283-4 (Mar. 9, 1951).

Results of tests conducted at Wolsey Ltd. have shown that greater levelness, lower steam consumption and less fiber damage can be obtained by use of mechanical agitation or vacuum machines in wool dyeing. A fabric dyeing machine was produced using a single pump of low horsepower to provide mechanical liquor circulation. The machine is totally enclosed and heating is effected by external heating coils situated in the circulation system between the pump and the point where liquor reenters the machine. Temperatures slightly below boil proved satisfactory, and a lower liquor ratio is required than in older types of dyeing machines.

The method of vacuum dyeing employed consisted of raising the temperature to about 70-80° C., entering the material to be dyed and then applying a vacuum. By both methods fuel savings resulted with greater levelness and less fiber damage since a fiber diffusion process resulted from good agitation at a lower temperature. Problems still exist in effectively dyeing highly aggregated dyes, and studies are being conducted to break down these aggregates by the use of chemical additives.

**Photochemical and thermal influences on fibers and dyestuff**

Albert Schaeffer. *Melliand Textilber. 32,* 617-

20 (1951); *in German.*

The author proves that changes in the dyestuff and the fiber observed when the dyed shade is exposed to light are caused not only by photochemical but also by thermal influences. The latter influences may be far greater than the former, depending upon the conditions during the exposure to light and upon the kind of box used. In order to reduce the thermal influences on dyestuff and fiber to a minimum, the author recommends that the usual boxes used for such tests should be dispensed with and replaced by larger chambers equipped with air circulation.

**Prevention of fiber tendering during dyeing**

W. Schonberger. *Melliand Textilber. 32,* 630-34 (1951); *in German.*

A tendering of the fiber may be caused when it is being dyed with vat dyestuffs whose leuco compounds during the oxidation form highly active oxidation and reduction of the dyestuff on the fiber. More and more of these peroxides are formed and eventually lead to complete destruction of the fiber. Investigations on this kind of fiber tendering were conducted with the aid of a specially constructed winch back and led to the discovery of effective fiber protective agents (aromatic polyoxy compounds), which, applied as additions to the dyebath, prevent completely or to a great extent tendering even of the particularly sensitive regenerated cellulose.

**Resist effects on wool**

R. Thornton & L. C. I. Ltd. Brit. P. 646,690. *Dyer 105,* 298 (Mar. 9, 1951).

Resist effects can be obtained on chlorinated wool, using dyes of the phthalocyanine series containing quaternary or ternary salt groups, by using pastes containing reducing agents, e. g., zinc formaldehyde sulfoxylate, which are more stable under neutral and acid conditions, together with an inert substance such as china-clay which has a marked mechanical resist effect, and an acid or acid salt capable of liberating acid under steaming conditions. Use of vat dyes in the printing paste to obtain a colored resist is also described. (For manufacture of the dyes see Brit. P. 587,-638, and for their use in resist printing for cotton or rayon see Brit. P. 633,160.)

**Reduction of direct dyes**

W. Armfield. *J. of Soc. of Dyers & Cols. 67,* 297, 301 (1951).

The presence of alkali and increase in temperature cause the reduction of certain direct





dyes during the dyeing of viscose rayon. Lowering the pH of the dye liquor decreases the tendency of dyes to reduce during dyeing. Addition of substance such as ammonium sulphate or chloride prevents reduction altogether in all but exceptional cases. The pH values of a number of aqueous dye solutions are listed, and a simple method is described whereby the susceptibility of direct dyes to reduction can be determined.

**Semi-automatic printing table**

W. Geiringer. Brit. P. 646,172. *Dyer 105,* 300 (Mar. 9, 1951).

This semi-automatic printing table consists of an endless blanket mounted on a series of rollers with a gumming roller, which dips into a gum bath, at the receiving end of the machine. The surface of the gumming roller passes under two doctors which are adjustable and are provided with a quick release device for cleaning. The fabric to be printed passes over a tensioning device and the gumming roller and is pressed into contact with the blanket. The tensioning device governs the amount of gum applied to the underside of the fabric by controlling the arc of contact between the fabric and gumming roller. The pressure roller, which presses the fabric into contact with the blanket, is mounted to provide fine adjustment of pressure so as to insure wrinkle-free adhesion. The printed fabric is stripped from the blanket at the discharging end by being led over a roller. It then passes to a drying oven, and the blanket passes through a cleansing zone consisting of rotary brushes and water spray pipes.

**Theory of the process of dyeing**

E. Elod & H. G. Frohlich. *Melliand Textilber. 32,* 622-26 (1951); *in German.*

Knowledge of the dissociation constants of color acids is of great significance for the theory of the process of dyeing. The dissociation constants may be deduced from the pH values of aqueous color acid solutions, from measurements of conductivity, or from the buffer equation. A description of a simple method of determining the dissociation constants from the pH values of n/100 color acid solution is given.

**Vat dyes on acetate**

G. D. Sutton, O. Boothby, & T. E. Marchington & Co. Brit. P. 646,769. *Dyer 105,* 300 (Mar. 19, 1951).

Cellulose acetate may be vat dyed with little or no saponification and without using a swelling agent by dyeing in the presence of sodium hydro-

sulfite which has been stabilized by controlling its pH value with an alkaline calcium compound. The amount of solution added to the dyebath should be one which will not produce substantial hydrolysis of the cellulose acetate. Two of the most satisfactory compounds for stabilizing the sodium hydrosulfite are calcium cyanamide and calcium hydroxide.

**Yarn dyeing keeps pace with aid of science**

Fred V. Trout. *Daily News Record,* Sec. 2, 14 (Sept. 6, 1951).

Although the yarn dyeing industry is a smaller segment of the textile industry, it, too, has kept up with the modern trend to better production and better quality. There are three types of packages in general use today, the 5/8-inch fiber tube, the 1 5/8-inch stainless steel tube and the 1 5/8-inch metal spring. The 5/8-inch fiber tube is the type of package most commonly handled by commission dyehouses. Correct winding of packages contributes in a large measure to successful dyeing.

## SPECIAL FINISHING F

**Anti-friction finishing agents**

R. Dicker. *Rayonne et Fibres Synthetiques 7,* 37-43 (1951); *in French.*

A discussion of the properties imparted to regenerated cellulose fibers by the condensation resins used as antifriction agents. The effect on swelling, shrinkage, and dyeing is discussed as well as the modifications of the fiber's mechanical properties.

**Bonding of rayon to rubber**

T. C. Morris. Brit. Patent 653,569. *Brit. Rayon & Silk J. 28,* 74 (Aug. 1951).

Use of a resorcinol-formaldehyde resin that remains perfectly fusible makes possible the advance preparation of large amounts of pretreated cord. The rayon is soaked in an aqueous solution of the resin so as to put on about 2.5% solids. After drying, the yarns are quite soft, free from tackiness, and can be woven on conventional machines. The resin effects a strong band with all types of snythetic rubber as well as with natural rubber.

**DuPont develops new water repellent**

Anon. *Textile World 101,* 172 (Sept. 1951).

A new water repellent, Quilon stearato chromic chloride, has been developed by E. I. duPont de Nemours and Co. Specific fibers that can be





treated successfully with this product are cotton, rayon, hemp, wool, silk, nylon and synthetic protein fibers. Quilon is a water-soluble chromium stearic-acid complex. The chromium anchors tightly to the surface that is being treated, and the stearate group orients outward to provide repellency to water and other aqueous solutions. Quilon treating solutions are generally compatible with basic dyestuffs under specific temperature conditions.

**Fabric cleansing and drying apparatus**

Leslie A. Runton (to J. P. Stevens & Co. Inc.) USP 2,565,576, Aug. 28, 1951.

A fabric cleansing and drying apparatus comprising a table having an opening therethrough, means for continuously moving a strip of fabric over the table across the opening, a dome cover having its edge engaging the fabric and surrounding the opening and forming with the table top and interposed traveling fabric an air-tight joint, means for supplying hot air into the cover, a main liquid abstractor beneath the table with its mouth formed by the opening, means for maintaining a vacuum in the main abstractor, means extending into the cover for feeding a cleansing liquid on to the advancing fabric beneath the cover at the front of the opening, an auxiliary liquid abstractor having a narrow inlet slot engaging the lower surface of the fabric beneath the cover and before it reaches the front edge of the opening, and means for maintaining a vacuum in the auxiliary abstractor acting to withdraw the cleansing liquid.

**Fabric finishing composition**

Carl M. Marberg, Marion E. Shields( to The Perfex Company) USP 2,567,722, April 29, 1947.

A fabric finishing composition water washable from a substantially dry fabric coated therewith and consisting essentially of water, a water soluble alkyl derivative of cellulose dissolved in the water, and from 0.2 to 5.0% by weight of said composition of a wax dispersed in said water.

**Fabric finishing apparatus**

Edward P. Taylor & Alexander Melville (1/2 to Bleachers' Assoc. Ltd.) USP 2,566,075, Aug. 28, 1951.

A machine for treating textile fabric comprising in combination an assembly consisting of a beater, resilient means supporting the beater, and electro-magnetic means adapted to be intermittently energized and disposed so as to be capable

of intermittently displacing the beater against the action of the resilient means, a supporting arrangement for the assembly, means for supporting fabric beneath the beater, means to move the fabric transversely to the direction of beater displacement and means to adjust the operative position of the beater, the resilient means and the electro-magnetic means in the direction of beater displacement.

**Finish for textiles**

John W. Schick & Howard D. Hartough (to Sacony-Vacuum Oil Co., Inc.) USP 2,565,695, Oct. 2, 1951.

A textile material is crush-proofed and waterproofed by means of a resinous material comprising a nitrogenous phenolic resin.

**Harris color strip for wool**

M. Harris, C. W. Harris, L. E. Fourt & A. M. Sookne. Brit. P. 646,908. *Dyer 105*, 297 (Mar. 9, 1951).

A process is claimed for replacing relatively unstable chemical bonds of keratinous materials such as wool with new chemical linkages, which are resistant to oxidizing, reducing, and alkaline agents. A valuable application of the process is in stripping color from wool. The process consists of replacing the disulfide bonds by the action of a reducing agent for keratin in the presence of formaldehyde or an alkylene dihalide.

**Mercury bath in yarn coating method**

Brit. P. 645,727. Fassoply Ltd. *Dyer 105*, 299 (Mar. 9, 1951).

Apparatus for coating yarn with plastics, e. g. vinyl polymers as solutions in methyl ethyl ketone or acetone as aqueous dispersions is provided. Yarn is drawn from a cop past a guide and over a roller into a bath in which a plastic solution or dispersion floats on the surface of mercury. A partition dips into the mercury and the yarn passes under its lower edge and then upwards to a drying chamber. A roller and scraper clean the mercury surface if necessary. Heated air passes by a duct and a butterfly valve to the drying chamber which has an outlet at its top. The yarn passes down the chamber again and over guide rollers to a take-up spool. A brush removes any loose material carried over with the yarn.

**Modern finishing problems**

Anon. *Dyer 105*, 311, 313 (Mar. 9, 1951).

The properties of cellulose are largely determined by the hydroxyl groups protruding at the





sides of the long chain molecule, and the permanent blocking of the hydroxyl groups will give crease resistance and will inhibit swelling in water. Rigid control of the amount of resin used to impart this crease-resistance is very important since excess of resin will decrease flexibility, wear resistance and crease resistance. The heat treatment which follows the resin application for its condensation must also be carefully controlled. Overheating will cause fiber damage and care must be taken to avoid high temperatures and long periods of heating. All reaction products left behind by the condensation of the resin within the fiber must be removed since a fishy smell will develop in the fabric from these products. Resin-treated fabrics which have become contaminated with hypochlorite must be after-treated with an antichlor, sodium thiosulfate, or sodium bisulfite. Otherwise tendering will occur due to the ability of urea- and melamine-formaldehyde resins to combine with the active chlorine of the hypochlorite. Dimensional control is another important factor in the crease resistance process, and any stretch in the fabric must be well released before the final baking. Finally, resin-treated materials should not be used where they are liable to become contaminated with tannic or proteinic substances since it has been observed that crease-resisting fabrics react with these substances and form stains.

**New approach to cloth finishing**

C. S. Whewell. *Dyer 105*, 293 (Mar. 9, 1951).

Methods of testing wool damage include such developments as the measurement of the work required to stretch fibers 30% before and after treatment, a Fluidity test by which the viscosity of a solution of the fiber indicates degradation, etc. Testing of wool damage is important in the development of new finishing processes and in modifying older ones. Results obtained in finishing trials carried out on blends of wool with rayon, nylon, etc., are discussed briefly, including notes on scouring and milling methods and anti-shrinking wool-rayon fabrics.

**New product prevents static charges on nylon**

Anon. *Textile World 101*, 172 (Sept. 1951).

A new synthetic organic compound, Dextrol Lektro-stat B, has been developed by Dexter Chemical Corp. for use as an antistatic agent on Nylon. Dextrol Lektrostat B can be added either to the dyebath or to a separate bath after dyeing. Application by the usual padding operation is said to be permissible. This new chemical is reported

to be readily soluble in water and slightly alkaline in reaction. It is compatible with anionic agents under normal processing conditions. It is resistant to dry cleaning and washing, has a definite softening effect upon nylon fibers, and has no adverse effect upon the light-fastness of colors.

**New finishing methods widen rayon uses**

J. A. Woodruff. *Daily News Record*, Sec. 2, 16 (Sept. 6, 1951).

News accounts of new finishing methods are made of the following: vat dyeing, molten metal dyeing, package and beam dyeing, aftertreated direct dyes, crease resistance, and the problem of a washable, shrinkage-control finish for shirtings.

With the 100% viscose fabrics, a new fabric type reaching full development has been the yarn-dyed plaid. In order to make this possible, both spun rayon package dyeing and beam dyeing with vat dyes have been developed to a high degree of success.

**Permanently stiffened effects — an improved process**

Brit. P. 646,200, Trubenised Ltd. *Dyer 105*, 297 (Mar. 9, 1951).

An improvement in the textile stiffening process, in which two piles of fabric with an intermediate layer of cellulose acetate are wetted with a solvent and fused together with heat and pressure, provides more suitable selection of the solvent mixture to avoid disadvantages in timing. Suitable active solvents are acetone and methyl acetate and suitable latent solvents are triacetin, benzyl alcohol and tetrahydrofurfuryl alcohol with methyl and ethyl alcohol satisfactory diluents. Recommended proportions are: active solvents, 7½-10%; latent solvents, 12½-20%; diluents, 70-80%. Water admixture may vary from 0-15% with the methyl or ethyl alcohol varying from 60-70%.

**Solution of plasticized cellulose acetobutyrate and fabrics coated therewith**

Howard A. Gray (to Monsanto Chemical Co.) USP 2,561,361, July 24, 1951.

A coating composition or dope comprising cellulose acetobutyrate and a mixed true solvent therefor consisting of from 35% to 60% of a lower nitroparaffin and from 40% to 15% of a lower aliphatic ketone, the percentages being by weight and based on the coating composition.

**Shrinkproof woven woolens**

Anon. *Am. Wool Cotton Reptr. 65*, 11-13 (July 19, 1951).





Woven wool fabrics, knitted rayon cloth, washable cotton and wool tubular knit fabrics, and all wool tubular knit jersey are now being processed by the Redman Shrinkproofing process which was originally planned for use only with cotton tubular knits. Quartermaster tests on Redman processed woolens are reported to have given excellent results.

Equipment in the Redman process consists of the normalizer which expands the tubular fabric to the proper degree; the basket shrinking drier where the fabric is dried in an entirely tension-free manner by means of air circulation causing the fabric to float in a slightly agitated state; and a tensionless calender and folding table for finishing. In a mill having up-to-date drying equipment, an abbreviated system is used consisting of drying the material in the normal manner, normalizing, calendering and folding. In shrinkproofing woven woolen fabrics, only the basket loop shrinker drier is used with finishing done on the tensionless calender range.

**Shrinkproofing of wool**

Mayne R. Coe, Jr. USP 2,562,603, July 31, 1951.

A process of reducing the shrinking and felting tendencies of wool which comprises impregnating wool with a dispersion in a volative diluent of 3 percent or less of a substance of the group consisting of conjugated triolefinic drying oils and conjugated triolefinic drying oil acids to deposit from about 0.5 percent to about 4 percent by weight of the cured substance, based upon the dry weight of the wool, and curing by heating the impregnated wool in a current of air at about 100° to 150° to form a durable, laundering resistant, shrink resistant, and felt resistant wool product having a finish of the heat cured substances less than .001 inch in thickness.

**Stabilization of regenerated cellulose fabric with glyoxal-amide reaction product**

Jack Epelberg & Raymond E. Pemrick (to Cluett, Peabody & Co. Inc.) USP 2,562,161, July 31, 1951.

The patent describes a method of stabilizing, against progressive dimensional shrinkage under repeated washings, a textile material containing predominantly regenerated cellulose by means of wetting the material with an aqueous solution of glyoxal and an amide.

**Synthetic resin finishes**

Brit. P. 654,077, June 6, 1951, Monsanto

Chemical Co.; *Brit. Rayon & Silk J. 28,* 67 (Sept. 1951).

The finishes referred to in this specification are such that impart abrasion resistance, crisp handle, and anti-slip properties. Moreover, the effects are maintained after numerous launderings. A wide range of water-insoluble synthetic polymers are referred to and include polyvinyl chloride, acetate, or acetals, polymerized acrylates, and various copolymers. They are prepared as stable emulsions or dispersions having a negative charge and are applied by padding since their substantivity is low.

**Urea-formaldehyde treatment**

Tzeng Jiueq Suen & Arthur M. Sciller (to American Cyanamid Co.) USP 2,565,278, Aug. 21, 1951.

A urea-formaldehyde resin modified with an amino-pyridine is recommended for the treatment of textiles to control shrinkage, impart crease-resistance and fungicidal properties thereto.

**Water-repellent finish**

J. G. Fife. Brit. P. 645,768. *Dyer 105,* 297-8 (Mar. 9, 1951).

A process for applying a water-repellent finish to textile fabrics comprises wetting the fabric with an aqueous emulsion of a siloxane polymer and heating at a temperature above 100° C. to effect decomposition of the emulsifying agent. The siloxane used is produced by hydrolysis of methylhydrogendichlorsilane. A quaternary ammonium halide is preferred as the emulsifying agent and should decompose on heating for a brief period before the fabric is damaged by the heating. To inhibit evolution of silane hydrogen it is desirable to add, e. g., acetic acid to the emulsion.

**Wrinkle-resistant finishes**

Marie Anotionette Falcone. *Rayon & Snythetic Textiles 32,* 53-53 (August 1951).

Fabrics from the very sheer to heavyweight types are now receiving wrinkle-resistant finishes. Urea-formaldehyde resins usually are employed to treat linen and rayon fabrics. Melamine formaldehyde resins are used on cottons.

Careful control and experience are required to produce good wrinkle-resistant finishes. Yarn and fabric construction have a decided effect on the properties of wrinkle-resistant finishes. Fabric must be thoroughly prepared. It must be cleaned, relaxed and freed from all sizings, and swelling agents may be used to assure better resin absorption.





The percentage of resin solids required depends upon the fabric, the desired hand, and type of resin used. All resin liquor must be uniformly removed from the fabric to avoid the formation of resins on the surface of the fabric; and too high temperatures in drying should be avoided for the same reason. Curing time varies with different fabrics, but must be carefully controlled because it has a pronounced effect upon the durability of the finish to laundering. Proper curing also minimizes the possibility of the treated fabric developing an odor or causing dermatitis.

Of several test methods available for measurement of wrinkle resistance, the Monsanto meter appears to be the most popular. The equipment is inexpensive and the procedure is quick and easy to learn. The method involves the use of small specimens cut from the warp and filling directions. After conditioning, the specimen is inserted into a metal holder and creased for mounting in the meter.

One end of the creased cutting is held firmly in the jaw of the meter while the other hangs free. The dangling end of the specimen is aligned with the vertical guide line on the back panel of the meter and the alignment readjusted periodically as the specimen recovers. The degree scale reading is taken after a five minute recovery period.

## TESTING AND MEASUREMENT G

### Instruments and instrumentation G 2

**Ballistic determinations of work of rupture of textile samples**

W. R. Long. *J. Tex. Inst. 7/8,* T314-T328 (July/Aug. 1951).

Described modifications of the ballistic pendulum used to measure the work of rupture of short textile samples. Gives details as to applications and limitations of the apparatus.

**Hand calculation of the standard deviation by successive summation**

L. J. Worthington. *J. Tex. Inst. 7,* P276-P283 (July 1951).

Emphasizes the comparative simplicity and self-checking qualities of the repeated factorial summation when no calculating machine is available.

**Instrument for dynamic continuous stress testing**

Walther Wegener. *Melliand Textilber. 32,* 604-11 (1951); *in German.*

The author describes an apparatus with a maximum load which diminishes in proportion to the elongation and makes it possible to carry out investigations both on the principle of a periodically recurring constant maximum load and cyclically recurring limitation of elongation. Load, elongation and time can be recorded continuously for both these principles, but separately from one another, or also only for predetermined oscillations. It is possible to use this instrument for tire cords or for fine rayon threads covering every range of load and elongation.

**Instrument for measuring elasticity and elastic recovery of textile fabric**

Arnold M. Hansen & Hazel M. Fletcher (To the people of U. S.) USP 2,568,731, Sept. 25, 1951.

An instrument for measuring elasticity and elastic recovery of a textile fabric simultaneously in both lengthwise and crosswise directions.

**Microdyeoscope yields data on dyes and applications**

Anon. *Daily News Record,* 27 (Sept. 20, 1951).

An instrument called the Microdyescope is described. It consists of a cell designed to permit microscopic observation of fibers mounted within it and forming part of the dyebath-fiber system. Circulation of the normal dyebath is achieved by use of a nitrogen gas lift incorporated into the apparatus. Temperature control in the circulating system is maintained with electric heater designed to correct heat losses and to insure that the cell in which the observations are made is as nearly as possible at the same temperature as the dye chamber.

**Statistical quality control**

N. L. Enrick. *Textile Age 15,* 48-51 (Sept. 1951).

Application of Statistical Quality Controls used in a mill fall into four categories: analysis of variance, control charts, sampling plans and correlation studies, which are discussed in the article.

**Tensiometer**

Frank M. Steadman. USP 2,563,881 Aug. 14, 1951.

A device for testing the tensile strength of fabric or individual threads and strands, comprising rigid and flexible lever arms having interengaging hinge knuckles formed intermediate their ends for pivotally securing the levers together to form relatively long operating handles and relatively short jaws, the jaws having flat, normally contacting inner faces, means for tautly clamping a material to be tested to the jaws to resist opening thereof when force is applied to the handles, an indicating bar integral with the knuckle of the flexible arm, the indicating bar being located in the plane of the levers and parallel with the flexible arm, and an indicator adapted to be operated by relative movement between the flexible arm and the indicating bar.



**Testing is synthetic requisite**

Thomas C. Ridgway. *Am. Wool Cotton Reptr. 65,* 61, 63-4 (July 12, 1951).

Research, quality control, and pre-testing are of the utmost importance in the manufacture of synthetic products since the properties of each synthetic fiber vary and utilization of the outstanding characteristics of each may only be obtained by a careful study of each property. A discussion is presented on the value of testing synthetics.

**Testing at high humidity needs attention**

Ernest R. Kaswell. *Daily News Record 174,* Section 2, 6, 14 (Sept. 6, 1951).

See front section.

**The measurement of stiffness in textile fabrics**

N. N. Abbott. *ASTM Bull. 176,* 49-51 (Sept. 1951).

The subjective evaluation of stiffness is used as a standard with which to compare the results obtained from five laboratory methods of measuring stiffness. Measurements were made on a range of 19 fabrics of varying fiber content, weave, and weight. The results indicated significant correlation in the case of four of the five methods. The test was repeated with a new range of eleven fabrics, with approximately the same results. Peirce Cantilever Test was selected as being the most convenient to carry out in the laboratory, and at the same time giving good correlation with the subjective estimate. There is described a more detailed examination of certain aspects of the Cantilever Test, and a specific technique is recommended which combines simplicity of equipment with ease of measurement.

**Wool scouring research unit**

Anon. *Am. Wool Cotton Reptr. 65,* 35 (July 19, 1951).

By-product recovery and waste treatment can now be studied in a wool scouring machine which produces wastes under controlled conditions. In

use at the Lowell Textile Institute, the unit has a settling tank located in conjunction with the second bowl in a 4-bowl train. Liquors can be bypassed into the tank on their return in the recirculating cycle from the squeeze roll pan to the feed end of the bowl with a small centrifugal pump accomplishing the feed to the tank.

## TEXTILE MILLS H

**Central lubrication**

Staff. *Textile Industries 115,* 137, 139, 141 Aug. 1951).

This is the second part of a report on the spring meeting of the Alabama Textile Operating Executives. Included in this report are: centralized lubrication and machinery maintenance; village maintenance; cleaning and maintenance of humidifiers; and salvage and supply of machine parts.

**Delta Finishing's new plant example of proper engineering**

R. R. Lang. *Am. Wool Cotton Reptr. 65,* 15, 56-7 (July 26, 1951).

Standard electric equipment in a mill is quite advantageous since operators find it easier to operate any range in a mill if they are all of a given type; maintenance men and mill engineers can more readily service and maintain the drives; fewer parts need to be stocked; and a standard drive gives greater flexibility to changes in layout. A description of the standard electric drives used at the Delta Finishing Co. is given to illustrate these advantages.

**Development of modern air conditioning**

Anon. *Saco-Lowell Bull. 23,* 34-8 (June 1951).

See front section.

**Electrical installation problems in the finishing plant**

Dan McConnell. *Textile Age 15,* 22-27 (July 1951).

See front section.

**European mills modernizing**

Anon. *Am. Wool Cotton Reptr. 65,* 47-8 (July 19, 1951).

Features of some of the exhibits shown at the recent international textile exhibition at Lille, France, are discussed.

**Mechanical time studies**

A. N. Engblom. *Textile Mfr. 77,* 390-94 (Aug. 1951).

See front section.

**Motion study in woolen spinning**

Anon. *Textile Mfr. 77,* 424-6 (Sept. 1951).

See front section.

**Rocky Mount's experience with control boards**

P. F. Morris. *Textile Industries 115,* 121, 123, 125, 127 (Aug. 1951).

Control boards used at Rocky Mount Mills, a cotton yarn mill, furnish all the information necessary for better production planning and more even distribution of job loads. In addition, production is balanced from one department to another, a visual guide is provided for maintenance scheduling, and the layout of new or relocated equipment can be easily planned.

A board is provided for each department in the mill with the charts about 4 feet wide and 3 feet high. These charts are mounted with hinges on a Kardex board and table and are divided into two parts. The upper part is in three sections: "Product Layout," "Machinery Layout," and "Job Layout." The bottom section of the board is made up of miniature machine models painted in different colors and arranged just as they are in the mill. Since the upper portion of the board consists of ruled cardboard forms covered with vinylite, symbols and information may be easily changed. Details of the operation of these boards are described.

**Safety and efficiency through materials handling**

Henry Miedendorp. *Rayon & Synthetic Textiles 32,* 66-68 (August 1951).

Quality of product, efficiency, lower costs, and safety are the factors involved in materials handling in the cotton mill. The planning of the production layout and its effect on materials handling, the variety of materials-handling equipment, the various material containers, the advantages of overhead conveyors, belt and gravity conveyors, and basic principle of mechanical handling are some of the points mentioned and discussed briefly by the article.

**Spiked apron magnetic separator**

Anon. *Textile Industries 115,* 83 (Aug. 1951).

"Spike," a new spiked apron magnetic separator manufactured by Erieg Manufacturing Co., is said to halt tramp iron travelling in the processing lines of cotton, waste, and woolen mills.

The magnets used are made of Alnico V, hav-

ing high pulling power. Maintenance is said to be simple, and cleaning is accomplished by using the lift handles to swing back the magnet.

**Stream pollution alleviated**

Harold R. Murdock. *Textile Industries 115*, 118-9 (Aug. 1951).

Waste waters from desizing and bleaching are objectionable in a stream because they consume the natural oxygen in the water, and waste from mercerizing operations are objectionable because it is strongly alkaline and destroys the natural neutrality of the river. Standard procedures will correct the objectionable qualities of desizing and bleaching wastes while acidification or evaporation of the caustic soda will correct mercerizing wastes so that it may be reused.

On the other hand, dye house wastes, particularly from the dyeing of cotton with sulfur dyes, are more of a disturbing factor in stream pollution than all other textile wastes even though they are much smaller in volume. Not only is an intense color imparted to the streams, but also the sodium sulfide in these wastes consumes large amounts of oxygen. In addition, chromium and other metallic salts used for fixing the sulfur dye onto the cloth are toxic chemicals poisonous to fish.

At the Pepperell Manufacturing Co. caustic wastes from the mercerizing range and the sulfur dyeing effluent were found to be adversely affecting the stream which received these wastes. Evaporators were installed to concentrate the caustic waste for reuse. A treating plant for operation simultaneously with the sulfur dyeing range operation, which was not continuous, was also installed. Installation of the treating plant, which is described, has resulted in greatly alleviating stream pollution.

**Tar spots**

Anon. *Textile Industries 115*, 77, 79 (Aug. 1951).

See front section.

**"Tar spots" are with us**

Staff. *Textile Industries 115*, 110-A -D (Oct. 1951).

See front section.

**Textile Management**

Fletcher Hollingsworth. *Textile Bull. 77*, 44, 46, 48 (Aug. 1951).

See front section.





**Three mills become one**

Staff. *Textile Industries 115*, 116-17 (Aug. 1951).

Three small yarn mills in Gastonia, North Carolina, each of which were manufacturers of fine combed knitting and mercerized yarns, have been combined into a single plant by making each mill operate as a department rather than as an independent mill. Located within 40 yards, one of the other, materials handling presented the biggest problem. This was solved by the installation of an automatic tram rail conveyor, mounted 30 to 40 feet above the ground, connecting the three plants. An enclosed car runs on the overhead rail and is supported by wire ropes swung from an electrically operated hoist. The system is said to accommodate 76,000 pounds of stock in process each week and is reported to have reduced operating costs considerably.

**The modern trend in textile finishing plant construction**

E. C. Gwaltney, Jr. *Textile Age* 15, 32-6 (July 1951).

A modern textile finishing plant must be a carefully engineered compact group of buildings, machinery and processes in which detailed study has been given to all features of maintenance and operation to the end that a minimum of personnel will be required to handle the maximum of plant production.

The factors behind the selection of proper materials for the building: the use of 20-foot ceiling heights, types of roof decking, floors, the placement of exhaust fans, and other structural details.

## CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

**Determination of the ionization constant of cellulose**

John B. Calkin. *Tappi 34*, 108A-112A (Sept. 1951).

Cellulose in different forms has been brought to equilibrium in various sodium hydroxide solutions with exclusion of air. The results of the work are summarized using the Donnan membrane equilibrium and, based on certain implicit assumptions, a derivation for the determination of the apparent ionization constant of cellulose is given. It also is shown that the apparent ionization constant of cellulose differs with alkali concentration.

**Emulsion xanthation of cellulose**

F. Gartner & O. Samuelson. *Svensk Papperstidning 15,* 501-4 (Aug. 1951) ; *in English.*

The present paper deals with the crystallinity of the undissolved fraction of cellulose obtained after emulsion xanthation under conditions where incomplete dissolution is obtained. Measurements have been performed according to the density method as well as by x-ray investigations.

**Hydrophobing agents for textiles**

Brit. P. 652,753. Ciba Ltd.; *J. Soc. of Dyers & Cols. 67,* 316 (Aug. 1951).

Acetylene is treated with an acid and a compound containing at least one alcoholic OH group and at least one carbon chain of > 11 C or containing at least one tertiary → C OH group. This produces esters containing the grouping > C:C COOR (OR = residue of the hydroxy compound used) with or without free acrylic acid. These esters are used, as either monomers or polymers, for finishing textiles and especially to impart water-repellency. When applied as the monomers they are subsequently heat-polymerized in the fiber.

**Micro-determination of nitrogen as ammonia by the diffusion technique**

H. Naylor. *J. Tex. Inst. 7/8,* T300-T308 (July/Aug. 1951).

Describes work undertaken with a view to using the diffusion technique for the analysis of very small samples of textile materials containing relatively large proportions of nitrogen, such as protein fibers, nylon, or cellulosic materials treated with resins. Results are obtained which are accurate within 1.5 percent.

**The soiling of textile fabrics**

A. J. Hall. *Textile Mercury & Argus 125,* 357, 269, 371, 373 (Aug. 31, 1951).

The effect the substances used in the finishing of the fabric and the moisture of the fabric itself have on the soilability of the fabric is discussed. Finishing materials which are greasy, powdery, cation- or anion-active, hygroscopic, etc., can appreciably influence the soiling properties of the fabric.

**X-ray study of the transition from water-cellulose to cellulose II in ramie, jute and sisal**

R. R. Mukherjee & H. J. Woods. *J. Tex. Inst. 7/8,* T309-T313 (July/Aug. 1951).

Presents data to show that the following steps take place when water-cellulose goes cellulose II upon mercerization:





(1) Cellulose I changes to soda-cellulose;

(2) Soda cellulose decomposes to form water-cellulose upon washing at room temperature;

(3) Water-cellulose changes to cellulose II when dried. This is the modification normally associated with mercerized regenerated fibers.

## TEXTILE EDUCATION AND RESEARCH J

**Effect of sonic and ultrasonic waves on dyeing**

M. Brauer. *Melliand Textilber. 32,* 701-07 (Sept. 1951) ; *in German.*

The author begins with a description of sonic and ultrasonic waves. He discusses how they are produced and what effect they have in the dyebath. The arrangement of the experimental dyeings carried out with sonic and ultrasonic waves is described. Submitting the dyebath to sonic waves resulted in a considerably more rapid equalization of concentrations in the dyebath. Ultrasonic waves have a similar effect; these, however, at the same time enable perfect penetration of even closely woven piece goods to be achieved with a minimum time of dyeing.

**Research delves for new fibers**

Anon. *Am. Wool Cotton Reptr. 65,* 14, 103 (July 12, 1951).

The Pioneering Research Section of duPont's rayon department is one of the most complete research laboratories for developing synthetic fibers and fabrics. Both applied and fundamental research is carried on in the laboratory by organic chemists; physical chemists, physicists; and chemical, mechanical, and textile engineers with the latest research facilities. Problems being studied by the section include: the tailoring of molecules to create polymers that will make fibers for spinning into textiles possessing the most desirable yarn and fabric properties; the chemistry of dyeing and color fastness; controlling the solubility, viscosity, etc., of polymers; etc. Among the products developed by this section is Orlon acrylic fiber.

**Textile education in Great Britain**

C. C. Lloyd. *J. Tex. Inst. 7,* P284-P301 (July 1951).

Discusses education and training as an adjunct to experience in textile mills.

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